GARDEN AND FOREST.

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The Forests of California.

THE memorial to the congress of the United States which has recently been drawn up by the California State Board of Forestry is most interesting as an official statement of the question which more profoundly affects the material welfare of that state than any other; it is important also because it sets forth with singular clearness of statement the peculiar dangers which beset the mountain forests of that region and the sweeping disasters which must inevitably follow their destruction. The progress and development of many portions of the Pacific states depends almost entirely upon their water supply; so much so that a failure of this supply would paralyze all industry and involve the entire section in bankruptcy. Mining, as at present conducted, can only be carried on where water abounds, and many rich mineral regions along that coast are now unproductive during a large portion of the year on account of an inadequate water supply. It is believed that this inadequate supply is partly owing to the diminution in the volume of many of the streams which head along the slopes and on the crests of the Sierra Nevada Mountains and its spurs and that this diminution is directly traceable to the wanton deforestation of these slopes. Many of these mountain lands have passed into private and corporate hands, and this fact multiplies the difficulties of imposing effectual restraints upon the destruction of timber by fire, by the axe and by the flocks of sheep which are pasturing the life out of the forests. Nevertheless there remain among the water sheds of the Sierra Nevada millions of acres of land still owned in fee simple by the United States. These lands are covered with forests to protect the fountains of the streams which furnish the very life-blood to the mining interests of the state, to its agriculture and horticulture, and to its inland commerce by preserving the navigable flow of the Sacramento and San Joachin Rivers. The custody of these lands, a part of the nation's inheritance, most certainly demands wise management, and therefore the forest officers of California address the general government with the full assurance that they have a right to ask for these mountain forests as careful stewardship as that given to the moneys in the public treasury.

Measures have been undertaken by the general government to punish marauders for cutting timber on the public domain, and yet it is held that the value and volume of all the timber and fuel that has been stolen in California for twenty years past are a trifle when compared with the standing timber and the growing young forests which are swept away every year by the combined agencies of fire and of sheep. It is not asked that there should be any abatement of energy in the suppression of the minor evil, but it is urged that the government falls short of its duty when it permits, without remonstrance, the obliteration of its forests by mountain fires and the more complete extinction of their young growth by browsing animals, even though it does spend a great deal of money in the prosecution and occasional conviction of some comparatively petty trespasser. Recognizing the water-storing character of forests and the danger from freshets which their removal will cause, this memorial invites attention to the added peril which will come from the encroachment of the unhospitable climate of the torrid and treeless districts lying to the south and south-east of the state if the great forests of the north-west coast which help to resist the enlargement of this arid region shall be swept away.

In view of all these dangers the Board of Forestry suggests, in the first place, the temporary removal of the Timber-entry Law in California and the absolute withdrawal from sale of all Federal timber-lands in that state until future surveys have determined the areas and boundaries of such tracts as are necessary to insure the integrity of the streams and natural waterways of the state. Again, it is recommended that the timber of such lands when fit to harvest shall be sold, and not the land. For this land the lumberman cares little. He buys so many feet of saw logs to the acre, and he will pay as much for the timber alone as he will for the timber and the land it stands on. Hence in selling the timber alone there is no loss of revenue to the Government, and while the fee of the land remains in the United States such regulations can be imposed for the preservation of the young growth and for the prevention of fires, as will insure the perpetual forest character of the land and secure continuous revenue for the future. It is worth noting that this plan has already been adopted with good results in Canada. The owners of sheep and cattle have so long used and abused the forest-land as a free range that they have come to think they have a special right to pillage the public domain that is denied to people engaged in other pursuits. But since the conviction of a few timber thieves has abated the once thriving industry of lumber-stealing, the same vigorous process would greatly mitigate the theft of pasture and the fires that invariably accompany it. It is also suggested that encouragement should be tendered to those who are willing to plant large tracts of forest on the mountain and foot-hill lands, which are unsuitable for agricultural use, and as a means to this end the establishment of forest experiment stations in the arid districts of Colorado, California, Nevada and Arizona is advised.

Every one who has had an opportunity to observe the forests of California and to note the influences which are working to curtail them on every side will endorse the concluding statement of this memorial:

> The present administration, or rather want of administration, of the Federal timber-lands of this coast, is an arraignment of the best intelligence and patriotism of the general government, which a disregard of the enlightened methods of other nations might not alone challenge, but which a due regard to ourselves and posterity does, and which strenuously and exigently calls for reformation and remedial measures that shall check the menace to our immediate and future prosperity.

It is to be hoped that Congress will not bury this rational and patriotic appeal in the pigeon-hole of some committee room, but that they will give it the deliberate attention which the far-reaching importance of the subject de-

mands. It is to be hoped, furthermore, that this paper will be read and pondered by friends of our forest throughout the entire country. Copies of the memorial can be obtained from Mr. William S. Lyon, forester of the commission, whose address is Los Angeles, California, and who invites the co-operation of public-spirited citizens in every part of the Union in urging its consideration upon the Congress now in session.

A prospectus relating to the new scholarships offered under the foundation of the Missouri Botanical Garden has been issued. Applications for these scholarships, which will not exceed six in number, must be in the hands of the director, Professor Trelease, not later than the 1st of March. A preliminary examination will be held on the 4th of that month. If there are more than six applicants for the scholarships, a competitive examination will be held on the 7th and 8th. The preliminary examination will be confined to English grammar, reading, writing, spelling, arithmetic and geography. The competitive examination, only held in case there are more applicants than scholarships, will embrace the history of the United States, English literature, algebra, German, elements of botany and zoology, and such other subjects as may be prescribed. Arrangements are made by which candidates living remote from St. Louis, who may desire to save the expense of a journey to that city, can be examined at their homes by the principal of some approved school. Successful candidates will begin work in the garden the 1st of April. They are to be lodged in comfortable rooms in a dwelling adjoining the garden under the charge of the head-gardener or some other competent person. Board can be obtained at reasonable cost.

It is the intention of the trustees of the school to make, as far as possible, the surroundings of the pupils home-like, although they assume no responsibility for their behavior outside of working hours. The scholarships may be held for six years, and the incumbents will be paid fortnightly at the rate of $200 a year for the first year, $250 for the second year and $300 for the remaining years. During the first year of their scholarship, garden pupils will be expected to work at the practical duties of the garden nine or ten hours daily, according to the season, and to read the notes and articles referring to the subject of their work in one or more good journals. In the second year, in addition to five hours' manual work, they will be given instruction and will be expected to do thorough reading in vegetable-gardening, flower-gardening, simple fruit-culture and orchard-culture. During the third year, in addition to their five hours' manual labor, they are to be instructed in forestry, elemental botany, landscape-gardening and the rudiments of surveying and grading, and will be required to take charge of clipping or indexing some department of the current gardening papers. The fourth year they are to study the botany of weeds, garden vegetables and fruits, with simple book-keeping and the legal forms for leases, deeds, etc. The fifth year they are to be instructed in vegetable physiology, economic entomology, fungi, especially those which cause diseases of cultivated plants; and each pupil, in addition to his five hours of manual labor, will keep a simple set of accounts pertaining to one department of the garden. They will study, during the sixth year, the botany of garden-plants, trees in their winter aspects, and the theory of special gardening connected with some branch of the work they are charged with in the garden.

With such opportunities for practice and study, a young man of ordinary intelligence and industry ought to be well equipped at the end of his six years, and able to command agreeable and remunerative labor. The demand for thoroughly instructed men to serve as managers of public parks and private estates is large already in this country, and steadily increasing. Skillful plant-growers abound, but really good gardeners, in the broad sense of the term, are difficult to find in America and in every other country.

The Forest Pavilion at the French Exhibition.

THE exhibition of the forest department of the French government at Paris last summer was perhaps the most comprehensive and best arranged display of its kind that has ever been made. The Forest Pavilion, which appears in our illustration on page 32, and its contents, were, of course, of the highest significance to visitors interested specially in forests and their products, and there was, perhaps, no one spot in the whole exhibition more frequented by the general public, who found, apparently, much to attract and instruct in the beauty of the building itself and in the variety of its contents. Indeed, so great was the crowd of people who thronged the building from morning till night, that anything like a critical examination of its contents was practically out of the question.

The building,* constructed entirely of logs cut in the forests belonging to the French government, representing all the indigenous trees of France and covered with their bark, was 125 feet long and nearly 120 feet wide. It consisted of one main hall, surrounded on three sides by a broad porch or piazza, with a half-story added at the rear and reached by an interior staircase, which admitted also to a wide gallery surrounding the main hall. The general scheme of the arrangement was due to M. de Gayffier, Director-General of the French forests, and was carried out most intelligently by a young architect, M. Lucien Leblanc.

Around the interior of the main hall trunks of the different species were arranged as columns to support the gallery, and between these were placed, first, a large cross-section of a trunk of the species, and then above this artistically grouped samples of all the principal objects made from the wood—an arrangement which enabled the visitor to see at a glance the wood of any given species and the principal products manufactured from it. The centre of the hall was occupied by working models of saw-mills and various machines used in working wood, and a number of specimens showing the methods of cutting up logs to the best advantage. The gallery surrounding the main hall contained a large number of smaller wood specimens, a large collection of microscopic slides illustrating the structure of the French woods, models of fungi injurious to wood, a most instructive series of specimens showing the results of different injuries to wood, abnormal growths, and the like, with an immense number of the minor products of the forest arranged systematically under the different species, tree-fruits, seeds, etc.

The most interesting part of the exhibition, to the general public at least, was found in the half-story. Here, in two or three small rooms, comfortably arranged with tables and seats, were maps and plans of French forests and immense collections of photographs illustrating French forest scenes in all their varied aspects. These rooms contained two plans in relief of the torrents of Vaudaine and of Riouchanal, and of various torrents in the Hautes-Alpes, and a series of water-colors of various torrents both in the Alps and in the Pyrenees. Three dioramas most artistically arranged in the rear of the half-story exhibited, in a remarkable and instructive way, the effects of mountain torrents and the labor required to restrain them within reasonable bounds. The first represented the torrent of Bourget in the Basses-Alpes, which for years devastated the valley of the Ubaye, but which, thanks to the intelligence and energy of the French forest-department, is now conquered. This end was accomplished by building a series of dams and by raising the bed of the stream bodily above its natural level, the flow of the water into the channel being checked by reducing the slopes and covering them with a forest of coniferous trees. The diorama shows the break-waters with the workmen engaged in planting the trees that to-day cover 1,200 acres, bordering an ordinary mountain stream which eighteen years before was one of the dangerous torrents of France. The second diorama shows the torrents of Riou Bourdoux, also in the Basses-Alpes, famous for its devastations and the most dangerous torrent of the French Alps. It once destroyed everything along its course and threatened the extermination of Barcelonnette, near which place it has its mouth. The diorama shows a dam constructed by the forest department, a colossal construction in masonry and hydraulic mortar, twenty-five to thirty feet high and nearly 300 feet long, intended to hold back the solid material brought down by the torrent and to prevent the passage of anything but the water. The work was only commenced in 1875, but a young forest already covers and holds the ground which, before it was planted, was entirely bare and

* A description of the Pavilion, with some account of the forest material which it contained, was given in GARDEN AND FOREST (ii, 478, 490.)

subject to constant movement. The third diorama shows the slope of Péguerre near Cauterets. Here it was not a question of restraining a torrent, but of preventing a mountain from sliding down and destroying, in its fall, the town of Cauterets. The work was accomplished by removing, in the first place, all the loose blocks of stone and then by clothing the loose and rocky soil with a vegetable covering consisting of squares of sod held up by cross walls of dry stone. This work, commenced in 1885, has been successfully terminated and the result is considered a marked success. The dioramas were seen through darkened chambers made to represent, in one case, the hut of a forest guardian with its rude furniture, and in another, a camp for the laborers employed on the work represented in the accompanying diorama, the naturalness of the effect being heightened by the presence of their tools and camp equipage.

Some idea of the care with which the Forest Pavilion and its contents were prepared will appear from the fact that the whole building was set up and arranged in the forest of Fontainebleau and then taken to pieces and removed to Paris. It is to find a permanent resting-place in the Bois de Vincennes at the other end of Paris, where it will serve to instruct and delight visitors to the French capital interested in forests and forestry. Indeed, it would be worth preserving for its beauty alone. Far from having the fragile, trivial look of most "rustic" constructions, its excellence in proportion, outline and execution give it genuine architectural character; and this is enhanced by the charm of its color. The panels of wood that cover the wall spaces between the supports are arranged in attractive patterns formed by the contrasting colors of the barks. The design of the piazzas and the interior gallery is particularly pretty, and much skill was shown in giving architectural dignity to the columns which support this last without the use of other material than that elsewhere adopted. Capitals of many curious yet appropriate shapes were made by groups of twisted roots, and were finished below by a simulation of a "cable moulding" formed of bast rope.

There is one criticism to make on this exhibition, and that is the absence of an official catalogue similar to the one published by the French government in connection with its forest exhibition of 1876. Such a catalogue would have added vastly to the benefit which visitors to the forest exhibition of 1889 derived from it.

Down the Rhone.—II.

JUST below Sarras, but on the eastern shore, lies St. Vallier, where a stone bridge spans the river with two arches that rest on a huge mid-stream pier. Like many Rhone towns, it is a single long row of closely built houses facing the high esplanade formed by the embankment. There could be no more delightful arrangement for the idle stroller or for that still idler fisherman who so perpetually appears in France. What can be caught in the Rhone I do not know, but its banks were lined with placid anglers from Vienne to Avignon —now perched on a lofty water-wall, now cosily nestled among overhanging Willows by some shady pool. Villages abound on the steep slopes—compact little clusters often set on spots where one wonders how they keep their foothold. Now they are surrounded by fields and vineyards, but again they seem carved out of the naked rock that supports them. They must be cold in winter and hot in summer, with no protection from either storm or sun. But to the artist's eye they are faultless, so entire is the harmony between man's work and Nature's. Built of the local stone, they are so like it in color and texture that they seem to have grown as spontaneously as the Poplars in the plain.

Below St. Vallier red disappears from the roof-tiles—only the yellows and dull browns characteristic of the south are seen. Two light suspension bridges sweep into sight, uniting Tain on the east bank with Tournon on the west. The multitude of bridges on the Rhone and the excellence of their construction amaze an American. They are old or new, stone or iron, resting on piers or swung boldly across, but they are always admirable of their kind, and in our practical land would be thought far too costly for the humble towns they serve. Tain lies against the foot of a hill once famous for the vines which supplied the "Hermitage" wine, but now ravaged by the phylloxera. All along the Rhone, indeed, many of the slopes, now so yellow and desolate looking, bore rich vineyards before the coming of the pest. Their beauty, however, has not been hurt so much as their usefulness—there is nothing finer to the eye under this brilliant sun and above these green lowland fields than their naked, glowing yellow.

After Tournon one may speak of mountains on the west bank rather than of hills—the mountains of Ardèche, which keep close to the river for a long distance, sending out to it long irregular spurs with deep gorges between. The next important town on this side is St. Peray, famous for its sparkling white wine, and across the river is Valence, where Napoleon passed certain youthful years—one may read about them in the delightful if untrustworthy chronicle which Dumas called "Voyage dans le Midi de la France." This is the first large town since Vienne, and it is admirably set high up on a hillside crowned by its ancient cathedral. Even from the boat one may look across the plains beneath it and see the jagged peaks of the Drôme country rising against the pallid sky. At every step now the landscape grows more southern in aspect and grander in form; and, did we know history as the traveler should, it would perpetually grow in human interest too. No land is richer in picturesque memories than this land of Provence, which still keeps in its name a record of the first conquest of the Romans in Gaul. It was near Valence that we first saw the Cypress-trees, afterwards ubiquitous in churchyard and burial ground.

At Lavoulte, on the west shore, is an enormous castle, rising high from the centre of the town, with great arcaded walls. No one would guess to look at it that it is now occupied by the employees of a neighboring factory. A great plantation of Cypresses gives a touch of dark color to this splendid mediæval picture, and the hills which follow are covered with a close, yellowish grass dotted with low, dusky shrubs. Poplars and Willows still often fringe the bank where the hills do not come close, and far off a wonderful blue mountain with a scalloped outline seems to bar the course of the stream. Then on the west we see, high up, a stretch of railroad borne by a tall viaduct of pinkish stone, and next a high hill terraced to the water's edge, partly by Nature, partly by man. The usually yellow rock is streaked here with pale gray and black, as one finds it so conspicuously much farther south at Avignon and Vaucluse. In spite of the Cypresses and the Figs and the golden rocks, however, there is a reminiscence of the north in an occasional steep, wooded gorge that has a truly Rhenish character. Looking southward at half-past one we saw the finest of color effects. On all sides were distant mountains of the most genuine blue. To the east was a nearer amphitheatre of hills, some vivid green, some pied green and yellow. The sky was blue and the clouds white, but whiter still was the sun-struck river flowing between pure white beaches fringed with low pale green Willows and filmy little Poplars. Human interest was given by a ruined castle on the western shore, and I thought I had never seen a landscape at once so dignified and so lovely, or one where the beauties of the north and the south were so harmoniously mingled. We had a bright sun tempered by racing clouds all the afternoon, and nothing could be fancied more enchanting than the varying effects they produced, sometimes blending all tones into a low, gentle harmony, sometimes bringing out the local color of tree and rock and tower in the most emphatic way against the azure heaven.

After Le Pouzin, with its feudal ruins, and Baix, a little beyond, with a vast ruined abbey and an eleventh-century church, the whitish towns all straggle along close to the water, and the vast old seigneurial structures rise triumphantly above them, with the hillside as a background. Here are beautiful hills, covered with close vegetation, like a bright green carpet, through which breaks the bluish rock, now in great shoulders and now in long stretches of steeply inclined strata. Sometimes all the western shore shows the blue tone of this rock and all the eastern the vivid green of cultivation. Again the hills are gently rounded, with very wide valleys between, running back at right angles from the stream, scattered with tufts of vegetation that do not conceal the bony structure beneath it, and striped by mountain roads like snowy ribbons.

After Rochemaure, where the basaltic rocks are quite purple, and the village was redder than usual, like many of the slopes, we race under another bridge, and reach Viviers, built on a narrow ledge, with a rock wall rising close and high behind the tall Gothic nave of the cathedral and its octagonal Romanesque tower.

Beyond this the hills are very bare, only sparsely dotted with close grayish shrubs and patches of pale grass. The general effect was all light yellow, broken only by an occasional fringe of green by the river; and frequently the rock had weathered to a sponge-like surface. At Donzère came one of the grandest scenes of the voyage, the river running through a defile between close high mountains. At Bourg St. Andéol, which we reached at half-past three, the hills had broken away to the right and the silhouette of the long street stood out sharply against the sky. First came the great white cathedral, with its semi-circular apse, arcaded octagonal tower and low

stone spire; then a fine sixteenth-century house, where, over the high court-yard wall, showed a mass of deep green foliage and a huge blazing pink Oleander; then a beautiful gateway of Rococo iron, and then an inn where the whole façade was hidden up to the second story by three huge specimens of *Euonymus Japonica*, growing in tubs and loaded with creamy blossoms. No plant is more common in southern France than this, and none is more beautiful unless it be the Oleander. We do not know in the least what an Oleander is, seeing it of small size, with sparse foliage and scattered flowers. One must see it where it is at home out-of-doors—often a veritable tree in dimensions and covered so close with blossoms that it looks like a huge bouquet.

It was nearly four when we reached Pont St. Esprit, with its ancient bridge dating from the latter half of the thirteenth century. It is 2,500 feet long and rests on nineteen great round arches and three smaller ones, and but for certain alterations made in iron at one end, looks just as it did 600 years ago.

Passing on, the shores stretched out in broad plains, and to the south-east appeared a lofty mountain, almost as white as snow to the top. Soon a single nearer peak came into view, with a jagged long hill beneath it, every point accentuated by a ruin. Wide amphitheatres of hills succeeded, and then a great long cliff of slanting strata, behind which still rose the far-off snowy mount. A castle of the same yellow as the cliff crowned its summit, and the river swept around its base straight toward the east, and skirted another similar cliff bearing another castle. These are the hills of Mondragon and Mornas, and the white mountain is Mont Ventoux which one still sees from Avignon. Nothing more splendid could be fancied than the color here, or than the bold yet harmonious forms of the hills, as steep and naked as walls in their upper portions and sloping and green below. The winding of the river shows them in ever-varying perspectives and each new point of view we think the very best. A little below come flat lands for a change, but with mighty ranges of mountain beyond them. At St. Etienne-des-Sorts we found a nest of yellow houses with a tall-bodied church bearing a tiny square tower. The naked soil was almost orange-colored here, and we knew we were in the *midi* indeed, seeing our first Olive-trees. At a quarter past five we passed two great towers, one round and one square, frowning at each other from isolated rocks across the stream, and, like the rocks, streaked yellow and gray. Looking back we still saw the great white mass of Mont Ventoux, and looking ahead we gazed now south, now east, now west, as the river wound about a succession of broad islands and under the edges of projecting rocks. It was a mighty stream by this time, having been fed by many tributaries since we started, and broadening out around a succession of large islands, yet seeming to flow more swiftly than ever. If every foot of the way had seemed a new delight, how shall I describe the approach to Avignon? The hills break away into more distant amphitheatres. The stream goes east, then turns south, and over its two arms and the green island between them we see afar off a high rock crowned by a diadem of massive golden towers. At this distance, against a sky already reddening for the sunset, it looked like a vision of the New Jerusalem. As we got nearer it was impossible to seize all the features that made up the splendid landscape. There was Avignon itself, lordly on the left bank, and, almost as lordly, the towers and walls of Villeneuve-les-Avignon on the right. Between them were the two wide arms of the rushing pale green stream, with a large bright green island between them, cut by endless rows of pollard Mulberries. The shores were fringed on the right with Poplar groves, while on the left rose groups of tall, black Cypresses. A great stone bridge crossed the prospect in the distance, and nearer were the remaining arches of that famous ancient bridge where, says the nursery rhyme, all the world has danced. Around all stood yellow peaks topped by picturesque ruins, and, still further back, the exquisite blue lines of mountain. It was all beauty, all grandeur, all romance, condensed into a single picture, and as the boat swept up to the *quai*, the western sky burned with a roseate splendor that was reflected from the water in great flashes and turned the yellow castle walls to pink.

The charm did not fade when we saw the inside of Avignon and the panorama from its towers, and from those of Villeneuve across the Rhone. And when to this was added a visit to Petrarch's Vaucluse—so often described, so wholly undescribable—it seemed as though, could one see but one beautiful place on earth, Avignon would be the place to choose. Yet one may stay there weeks and never really see it, for its very best shows only when one comes upon it in a summer sunset by the great water highway.

New York. *M. G. Van Rensselaer.*

New or Little Known Plants.

Phalænopsis, F. L. Ames.

IT can be said of very few plants that an individual represents all there is of a particular form or variety or hybrid which, not being reproducible from its own seed, must perish with the individual, and so disappear unless the conditions which produced it happen to produce another individual similar to the first. Such unique plants are always interesting in themselves, and the interest increases from a horticultural point of view when they have qualities which make them valuable for their beauty apart from their rarity. Such a plant is the Phalænopsis, of which a figure appears on page 29 of this issue. A few roots and three small leaves are all there is to represent this plant, which is a hybrid raised in England by Mr. Seden, the successful Orchid-hybridizer in the Veitchian Nurseries. It was bred from *P. amabilis*, a plant known in gardens often as *P. grandiflora*, fertilized with the pollen of *P. intermedia*, itself a hybrid between *P. rosea* and *P. Aphrodite*. The seed which resulted from this cross was sown in 1882; one plant appeared, and five years later (a wonderfully short time for a seedling Orchid to grow to the flowering state) this plant flowered. It was exhibited at a meeting of the Royal Horticultural Society, and was described by Mr. Rolfe in the *Gardeners' Chronicle* of February 18th, 1888, in which a figure of the flower was published, the hybrid being named for Mr. Frederick L. Ames, of North Easton, Massachusetts, to whose collection it was added in the spring of the same year. It has just flowered for the second time at North Easton, and although the plant is in excellent health, it carries only three leaves and is so small that the immediate prospect of increasing it by division is not good. Four flowers were open at the same time this year on the long stout scape; they were fully three inches across, with pure white sepals and petals. The lip, almost identical in shape with that of *P. amabilis*, is marked with bright red-purple on a ground of yellow or yellow-white, the crest being yellow striped with purple. As Mr. Rolfe has pointed out, the flower "is remarkably intermediate between its two parents, and makes a decided step backward to the tendrillea section of the genus." We are indebted to Mr. Ames for the opportunity of figuring this beautiful and interesting plant.

Foreign Correspondence.

The New Plants of 1889.—II.

STOVE AND GREENHOUSE PLANTS.—The most remarkable plant in this division is the gigantic Aroid, *Amorphophallus Titanum*, which, although introduced to Kew ten years ago, did not flower in Europe until June of this year. A description of this extraordinary plant has already been published in GARDEN AND FOREST. I may observe that the plant at Kew is apparently in good health, and beyond losing eight pounds in weight through flowering, the enormous tuber was not otherwise affected. *A. Eichleri*, a small species from the River Congo, has also flowered this year at Kew. It is an interesting and ornamental plant of its kind, but it emits a horrible stench when in flower. *Arisæma Wrayii*, a new species from Perak, with the habit of *A. nepenthoides* and a spathe six inches long, colored white and emerald green, is a pleasing addition to the cultivated plants of this genus. Arisæmas are as easily grown as tuberous Begonias, and the flowers of most of them are exceptionally quaint and attractive. *Carludovica palmifolia* is a provisional name for an elegant leaved plant, certainly a Carludovica, which Mr. B. S. Williams has introduced this year. *C. rotundifolia*, a near ally of the well known *C. palmata*, from which Panama hats are made, is another addition to ornamental foliage plants, and it is also attractive in its Medusa-like inflorescence and the rich colors of its fruits. It has been in cultivation at Kew some years, but has only recently been definitely named and figured in the *Botanical Magazine*. Mr. Bull offers under the name of *Encephalartos regalis*, from Zululand, a Cycad which resembles *E. Hildebrandtii*. Kew has distributed this year the only noteworthy Palm, namely, *Catoblastus præmorsus*, from Venezuela, with compact habit

and elegant bright green pinnate leaves, as delicate as those of *Cocos Weddelliana*, and likely to prove as useful. Nepenthes receive more attention now than they ever did, and in addition to the numerous seedlings and hybrids in cultivation, we possess many distinct and beautiful species. To the latter Messrs. Veitch have added *N. Curtisii*, var. *superba*, remarkable for the rich brown-purple blotches on its long, elegant, narrow pitchers; and *N. Burkei*, a Bornean species recently described by Dr. Masters, and which is peculiar in having cylindric pitchers, inflated at the base, and wholly destitute of wings. *Sarracenia decora*, a hybrid with pitchers nine inches long, colored reddish brown and tessellated with white, and *S. Wrigleyana*, a prettily marked hybrid from *S. psittacina* and *S. variolaris*, are two distinct additions to the many side-saddle-flowers which are cultivated in English gardens. *Amomum magnificum* has been already mentioned (vol. iii., p. 8); it is likely to become a useful plant in furnishing large tropical houses. *Dracæna marmorata* is a large species in the way of *D. Lindeni*, but with curiously mottled leaves. It has been introduced from Singapore to Kew and flowered and named this year. *Allamanda violacea* is not new to cultivation, but it had been lost sight of for many years until this year, when plants of it flowered at Kew. The best colored variety of this very interesting species is a first-rate stove flowering plant. *Echites atropurpurea* is another tropical Dog-bane which was in cultivation at the beginning of the present century, and then disappeared again until this year, when it flowered in a garden at Croydon and was sent to Kew as a new plant. It is a free-growing climber, small leaved, with numerous racemes of dark purple flowers, similar in shape to those of *Dipladenia Boliviensis*. *Epiphyllum Makoyanum*, a variety of what was introduced in 1885 as *E. Russellianum*, var. *Gaertneri*, but which is almost certainly a third species of the genus, was certificated this year as a new plant. Whatever the decision in regard to names may be, there can be but one opinion as to the beauty and useful character of these two plants. *E. Makoyanum* was introduced in 1885 from Brazil, by Messrs. Makoy & Co., of Belgium. *Solanum pensile* is a lovely climber from Demerara, which festooned the rafters of one of the stoves at Kew this year with long pendent racemes of purple-blue flowers, as fine as those of the *S. Dulcamara*, the Bitter-sweet of our hedgerows. *Tecoma Smithii* is a beautiful flowered hybrid from *T. Capensis* and *T. velutina*, raised in the Melbourne Botanic Gardens, and sent this year to Kew, and to Mr. Bull. It is described as being one of the most beautiful of all the Tecomas, the flowers being large, in enormous panicles, and colored bright orange and chestnut. It will be a useful plant for the greenhouse or conservatory, but like all Tecomas, its flowering depends much on its enjoying plenty of sunlight at all times. *Protea nana* is a charming greenhouse plant, with linear Heath-like foliage and nodding terminal cup-shaped flowers, like magnificent *Genethylles tulipifera*, and colored rich blood crimson. The Proteas are worthy plants for the greenhouse, and especially for countries where the climatic conditions resemble those of the Cape, where these plants abound. This species and *P. longiflora*, with oblong leaves and erect, large white flowers, have been introduced and flowered this year for the first time at Kew. Another Cape plant, but of a very different nature from the Proteas, is *Drosera cistiflora*, whose flowers were first developed this year at Kew, and were the delight of both botanists and gardeners. A Sundew, with linear leaves on an erect stem, five inches high, and terminated by a poppy-scarlet flower, cup-like and two inches across, could not fail to cause some excitement amongst those who were familiar with the comparatively very small flowers of the common Sundews. It is satisfactory to be able to state that the plant at Kew is growing freely, and promises to be as easy to cultivate as *D. Capensis* and other Cape species. Another Cape Sundew, of much greater botanical interest even than the Cistus-flowered Drosera, is *Roridula*

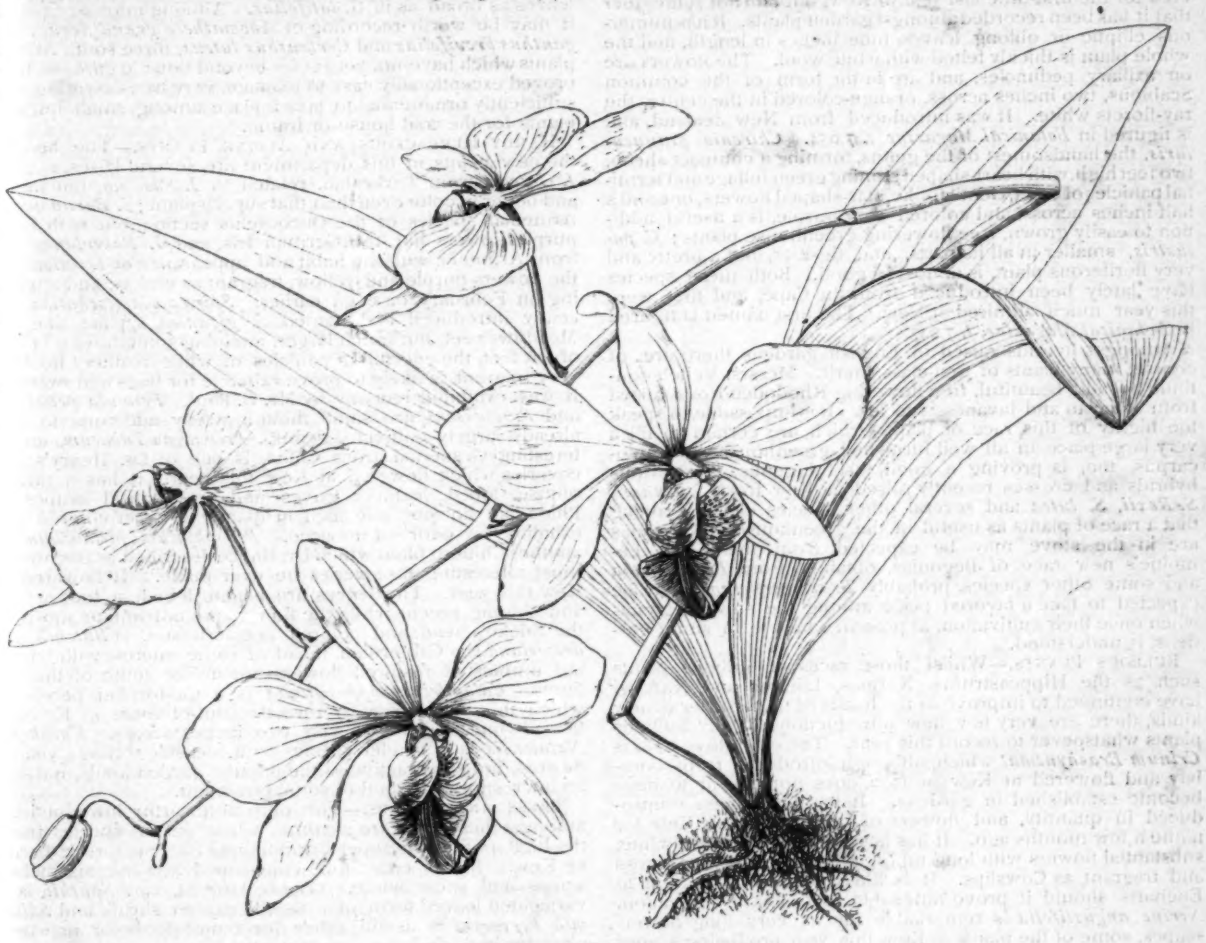

Fig. 5.—Phalænopsis F. L. Ames.—See page 28.

dentata, large plants of which are in the Edinburgh Botanic Gardens. It is a shrub, with hard, woody stems and long linear leaves clothed with viscid glandular hairs, as in Drosera; and it bears terminal racemes of white flowers. A shrubby Sundew, attaining a height of three or more feet, and with leaves so sticky as to render the plant, when hung up in the house, useful at the Cape as a fly-catcher, is a novelty of no ordinary kind. Seedlings of it are in the Kew collection. Still another new plant from south Africa is *Gerbera Jamesoni*, which has already proved a charming pot-plant for the greenhouse, and may also prove hardy in the neighborhood of London. It has pinnatifid hairy leaves about a foot long, and single-flowered scapes, the flowers or heads four inches across, not unlike the Paris Daisy in form, and colored bright flame-red. This is certainly one of the best of the new introductions of this year. *Olearia insignis* is a very striking addition to the goodly number of the Olearias already in cultivation in England. It flowered for the first time last year at Kew, but I do not remember that it has been recorded amongst garden plants. It has numerous elliptic or oblong leaves, nine inches in length, and the whole plant is thickly felted with white wool. The flowers are on axillary pedunoles, and are in the form of the common Scabious, two inches across, orange-colored in the centre, the ray-florets white. It was introduced from New Zealand, and is figured in *Botanical Magazine, t.* 7,034. *Chironia peduncularis*, the handsomest of the genus, forming a compact shrub, two feet high, with heart-shaped shining green foliage and terminal panicles of erect, Gentian-like, star-shaped flowers, one and a half inches across, and colored rosy purple, is a useful addition to easily grown, free flowering greenhouse plants; *C. palustris*, smaller in all its parts, and fleshier, but a pretty and very floriferous plant, is almost as good. Both these species have lately been introduced from the Cape, and they were this year much admired at Kew. The first named is figured in *Botanical Magazine, t.* 7,047.

Amongst hybrids raised in English gardens there are, of course, many plants of first-class merit. Messrs. Veitch continue to add beautiful, free flowering Rhododendrons raised from Malayan and Javanese species. It is impossible to speak too highly of this race of plants, which are certain to fill a very large place in all well furnished greenhouses. Streptocarpus, too, is proving a good, useful genus, the various hybrids and crosses recently raised at Kew from *S. Dunnii*, *S. Rexii*, *S. lutea* and several other species clearly proving that a race of plants as useful in the greenhouse as Gloxinias are in the stove may be expected from them. M. Lemoine's new race of Begonias, obtained from *B. Socotrana* and some other species, probably *B. semperflorens*, may be expected to take a favored place among the stove Begonias when once their cultivation, at present a failure in some gardens, is understood.

BULBOUS PLANTS.—Whilst those races of bulbous plants such as the Hippeastrums, Nerines, Liliums and Narcissi have continued to improve in the hands of the breeder of new kinds, there are very few new introductions of any bulbous plants whatsoever to record this year. The only stove bulb is *Crinum Brachynema*, which, although introduced from Bombay and flowered at Kew in 1870, does not appear to have become established in gardens. It has lately been reintroduced in quantity, and flowers of it were sent to Kew for name a few months ago. It has large umbels of pure white, substantial flowers with long tubes, a limb three inches across and fragrant as Cowslips. It is likely to become a rival to Eucharis should it prove amenable to ordinary cultivation. *Nerine angustifolia* is remarkable for its very long flower-scapes, some of the plants at Kew this year producing scapes three feet long, and bearing an umbel of about twenty rosy red flowers, similar to those of *N. flexuosa*. *Tigridia Pringlei* is likely to become a favorite here, though it is very similar to *T. Pavonia* both in form and color. *Gladiolus Leichtlini*, a new introduction from the Transvaal, with bright red flowers like those of *G. psittacinus*, and *G. Adlami*, from the same region, with flowers dull yellow spotted with red, otherwise similar to *G. cardinalis*; these two new species have been flowered at Cambridge. The hybrids *G. turicensis* and *G. Nanceianus* are both very beautiful breaks of continental origin, being large in flower, distinct in shape and beautiful in colors. They are the progeny of *G. Saundersii* and *G. Gandavensis*, and are perfectly hardy in England. Messrs. Veitch & Sons exhibited a collection of the Nanceianus race before the Royal Horticultural Society this year, and they were generally admired. *Watsonia iridifolia*, var. *O'Brieni*, is a pure white flowered variety of a robust, free flowering, easily grown plant, and is likely to become popular. It is the plant which Mr. Goldring mentioned as *W. iridifolia*, var. *alba*. It was introduced from south Africa by Mr. O'Brien, of Harrow. *Lilium Wallichianum*, var. *superbum*, is a noble Lily from India, introduced and flowered this year by Messrs. Low & Co. It has a stout stem, six feet high, bearing three or four flowers, each nine inches long and six inches across the limb, the color milk-white with a pale yellow throat. The Indian Liliums are difficult to establish in English gardens, otherwise they are first-class. We have now *L. Nepalense* (introduced last year), *L. Neilgherrense*, *L. Philippinense* and *L. Wallichianum*, but they gradually weaken under cultivation. A new variety of *L. longiflorum* from Hong-Kong and the newly discovered *L. Henryi* from China are in cultivation at Kew, but they have not yet flowered. *Fritillaria Bucharica*, from central Asia, is an interesting species with whitish flowers borne singly in the leaf-axils near the top of the stem. *Galanthus Fosteri*, from the province of Sirwas, in Asia Minor, has flowers like the larger forms of *G. Elwesii*, and leaves as broad as in *G. latifolius*. Although not new plants, it may be worth recording of *Anomatheca grandiflora*, *Anoiganthus brevifolius* and *Cyrtanthus luteus*, three south African plants which have not yet got far beyond botanic gardens, have proved exceptionally easy to manage, very free flowering, and sufficiently ornamental to take a place among small bulbous plants for the cold house or frame.

HARDY HERBACEOUS AND ALPINE PLANTS.—The best of the new plants in this department are several Irises, notably *I. Gatesii*, from Turkestan, related to *I. Susiana*, but larger and better in color even than that superb plant; *I. Barnumæ*, an Armenian species of the Oncocyclus section, but with large purple flowers like the German Iris, and *I. Bakeriana*, also from Armenia, with the habit and appearance of *I. reticulata*, the flowers purple and yellow, fragrant as violets, and appearing in February or even earlier. *Spiræa Kamtschatika*, recently introduced and named *S. gigantea*, a plant like our Meadowsweet, but much larger, attaining sometimes a height of ten feet, the enormous panicles of white, feathery flowers, very fragrant, is likely to prove valuable for bogs and swamps. It was exhibited recently by Mr. G. Paul. *Primula petiolaris* and *P. Poissoni* are small though pretty additions to this already largely cultivated genus. *Primulina Tabacum*, an interesting Gesneriad from China, is one of Dr. Henry's discoveries which flowered at Kew this year. It has a tuft of obtuse, lobed, leathery leaves and erect viscid scapes of Phlox-like flowers, one inch in diameter, violet colored and exhaling an odor of tobacco. *Podophyllum pleianthum* is another Chinese plant which Dr. Hance described as one of the most interesting discoveries he ever made. It flowered at Kew this year. The leaves are peltate lobed, a foot across and shining green, while the flowers are not unlike those of the Snake's-head and colored deep crimson. *Clintonia Andrewsiana* is a Californian Liliad of some interest with terminal umbels of rose-red flowers not unlike some of the Alliums. *Calandrinia oppositifolia* is a Californian perennial which this year was very attractive out-of-doors at Kew; it bears white, star-like flowers two inches across. *Kniphofia Natalensis* is a slender species with pleasing, orange yellow flowers, not so attractive as the popular garden kinds, but still an interesting plant and of some ornament.

TREES AND SHRUBS.—The only noteworthy introductions amongst these are *Rosa gigantea*, a magnificent species from the high regions of upper Burmah, and likely to prove hardy at Kew. It has enormous, cup-shaped flowers, six inches across and snow white. *Cornus Sibirica*, var. *Spathii*, is a variegated leaved form of a useful garden shrub, and *Skimmia Foremani* is useful either for out-of-doors or as a pot plant for in-door decoration in winter.

Kew. *W. Watson.*

Entomological.

A New Elm Insect.

(*Zeuzera pyrina.*)

SCARCELY a year passes nowadays that does not bring to light some insect newly imported from a foreign country. These importations are in no case desirable acquisitions, and, as a rule, become our most destructive pests. The Elm has suffered for some time from the attacks of the imported Elm-leaf beetle (*Galeruca xanthomalæna*), and now it seems settled that another pest has gained a foothold among us, and threatens destruction to our Elms by boring into the branches.

This species is the *Zeuzera pyrina*, Fabr., in the imago stage a very handsome white moth, rather closely spotted with black, as shown in the figures.

For several years back single specimens of the species have

been found in the city of Newark, and their occurrence has been deemed accidental, owing to the small number; but they increased steadily, and for the three years last past they have been numerous around the electric lights along Broad Street, especially near the parks containing many Elms. This occurrence pointed to the Elm as their probable food-plant, and some

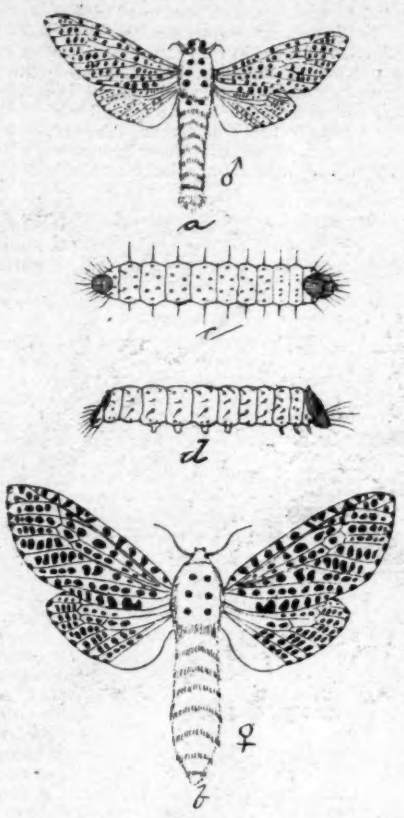

Fig. 6.—Zeuzera pyrina.

a, Male moth; *b*, Female moth; *c*, Caterpillar, dorsal view; *d*, Caterpillar, lateral view.

of the Newark collectors tried to find the early stages, but sought them in the trunk and roots without success. Finally Mr. Angelmann, examining the branches of a felled tree, found the larva of the borer in considerable numbers in the smaller twigs, and in burrows in larger branches found also the pupa. The moth, it seems, deposits its eggs in the fork of a small branch, and the young larva burrows downward toward the larger branches, tunneling generally through the centre, and usually killing the branch. In color the larva is whitish, as is usual with borers, with black dots, each bearing a single hair, arranged as shown in the figure, which also gives very well the general appearance of the caterpillar. I understand that the terminal branches of many of the trees in Newark have been noticed to be dying, but the cause has not been heretofore discovered. There is little doubt that this insect is responsible for the injury, and that it has gained a firm foothold. That it is spreading is indicated by the fact that during the season of 1889 it made its appearance at Arlington, a suburb of Newark. The insects are attracted by light, and many hundreds of them are drawn to the electric lights and destroyed; these are mostly males, however. There is no reasonable doubt that this destruction of the moths has done much to prevent a more rapid spread, and it is to be feared that once out of the influence of the electric lights their march will be rapid.

As to remedies, I have no suggestions to make at present. Borers are hard to deal with at best, and a borer that attacks branches from sixty to seventy-five feet above ground is an especially unsatisfactory creature to deal with. Heroic remedies would be best here, and I would recommend free cutting and burning of affected branches as the best means of checking their increase and spread.

Rutgers College. *John B. Smith.*

Cultural Department.

Rose Notes.

THE closest attention is needed in the Rose-houses during midwinter to ensure success, and all extremes should be avoided, not only in moisture, but in heat and ventilation; in fact, but little of the latter will be necessary until the sun gains power and the days are perceptibly lengthened.

In many instances the crop will have been cut to a greater or less extent during the holiday season, and the next care on the mind of the grower is to make his Roses break well again for the following crop. With this in view, a little extra stimulation in the form of liquid manure may be given, or else a light sprinkling of hen manure may be applied to the surface of the beds. The latter should, however, be used with caution, as its action is somewhat similar to that of guano.

In the matter of watering, much judgment must be used, as an open, porous soil will allow of much more water without injury to the plants than can be safely given to those planted in heavy, clayey soil, which are, upon the whole, rather difficult to keep in the proper condition during bad weather. In either case it will be found that some portions of the beds will dry out much faster than others, and therefore will need much more frequent waterings. During the sharper weather to be expected in January, the firing will naturally be more brisk, and there is in most greenhouses an extra warm and dry corner, especially in those where the boiler is built into the end of the house, and it is in just such places that red spiders are likely to flourish if undisturbed.

To avoid the spread of these pests, special care should be given in syringing these dry corners, so that the spider cannot secure a foothold.

Malformed and knotty buds are frequently seen on some varieties at this season, and they should be cut off as soon as discovered, since it is a waste of the energies of the plant to allow it to finish the growth of such a bud, apart from the valuable time lost by the grower while waiting for the development of a flower finally decided to be worthless.

Good Roses have been rather scarce during the past holiday season, the mild weather of December having disarranged the calculations of many growers. In addition to the high temperature, most of the month was very damp, both of which conditions were far from beneficial to the Rose-crop. In fact it has been anything but an ideal season for Rose-growing thus far, and this serves to impress upon the minds of growers the truth that although a Rose may be an every-day kind of plant, yet it is not an every-day occurrence to see a house of Roses in perfect condition.

The early crops of Hybrid Perpetuals have not been up to standard in many cases, though some good houses are to be seen, while others have proved total failures. This latter condition was not a surprising one on account of the excessive rains of the past summer, the frequent downpour rendering it almost impossible to properly ripen the wood for early crops. Among the earlier hybrids Mrs. John Laing and Madame Gabriel Luizet take a prominent place, these being among the most beautiful of pink Roses, and both are readily forced.

Each of these two excellent varieties has many admirers, Madame Luizet being, perhaps, the largest flower, though Mrs. Laing possesses some advantage in point of form.

It is said that Wootton is producing the best result in the hands of the introducer. Possibly the needs of this variety are better understood there than elsewhere.

Another addition to the list of Roses is now offered by a western firm in the form of a sport from Papa Gontier. From the description, this new candidate for public favor seems to be of questionable merit, the novel feature being its variegated color, which is more or less splashed with different shades. It does not appear that this would be an improvement on the type.

Holmesburg, Pa. *W. H. Taplin.*

Christmas Roses.

SINCE the notes on these plants published in GARDEN AND FOREST of January 1st were written, other species and varieties of Hellebores have come into bloom, namely: *H. orientalis, H. abchasicus, H. niger, H. niger angustifolius*, the variety known as the Scotch, or Wardie Lodge form, and *H. niger maximus*. They make a very interesting group, thanks to the abnormal mildness of the season, and they were equally good last year. The winter of 1888–9 and the present one, so far, have been distinctly English, and our Hellebores have flowered above the snow (when there has been any), actually

and not "traditionally," as seems to be the case with Mr. Gerard's plants. I have grown Hellebores both in England and Ireland, and the growth made by plants here equals in every way that made in the British Islands, and there is no reason to doubt that if Hellebores are so planted that they may be covered with a cold frame in the event of cold weather, these beautiful flowers may be had in perfection in America, even in severe seasons, as frost has no injurious effect on the flower buds, and the sunshine of bright days would be sufficient to fully expand the flowers. As to exposure to the sun in summer, it must be taken into consideration that M. Correvon's cultural directions, when applied to this country, should be adopted with some modifications. We have found that in light soil, during protracted dry weather, the large, leathery leaves become veritable signals of distress unless water be applied; hence the advisability of planting in soil of a retentive nature, when the preference is to be had. An examination of the roots of Hellebores will show that the young growing parts are covered with minute root-hairs or feeders, and these must, of necessity, suffer severely in the event of drought. As to the proper time for division, while it may be possible to divide the plants after the foliage is matured in June, we would not risk advising any one to perform the operation at this season, unless he had time to nurse his plants afterward, while it may be done safely and easily in early spring before growth commences, or in September, when strong sunshine is past. It is rather difficult to understand how a "warm cold frame" differs from "a cold house from which frost is excluded," as in either case the plants must be lifted again in spring. The placing a cold frame over Hellebores in their permanent quarters would hardly chill the enthusiasm of any lover of flowers. Recent visitors here have expressed surprise that these plants could be grown in eastern gardens, and there is no doubt that this is not so generally known as it should be, taking into consideration the fact that no other flowers are to be had out-of-doors, even in a mild season like the present.

Passaic, N. J. *E. O. Orpet.*

The Forest Pavilion at the French Exhibition.—See page 26.

Propagating Chrysanthemums.

IN the last issue of GARDEN AND FOREST a Japanese authority is quoted as saying that Chrysanthemums are sometimes propagated in his country from a single leaf with the bud at its base. Permit me to add that at the November Chrysanthemum Conference, in London, Mr. R. Beale exhibited some small Chrysanthemum plants, said to have been grown from leaves only, and they were naturally objects of considerable interest. In a note to the *Gardeners' Magazine*, in the same month, Mr. Beale explains that these plants were not strictly obtained from the leaves only, but that the axillary bud was used with it, a V-shaped cut being made in the stem, and the bud with the leaf attached being used without any wood and struck in fertilizing moss. Mr. Beale claims that such cuttings almost invariably strike, and also that he can get rooted plants from leaves without the bud, though the growth is much slower. The Chrysanthemums can no doubt be increased readily in the first way suggested, and perhaps with leaves only, though the cultural skill and care required in this latter case would be considerable, and the growth would be so weak and slow as not to be of much utility. Mr. Beale believes that this method of propagation will be valuable where a large stock of a new variety is required, but it is difficult to see wherein it is an improvement on layering the flowering stems when stock is scarce and large increase is wanted. The Chrysanthemum is a very accommodating plant, ready to throw out roots from all parts except the flower, and hence it is rapidly multiplied. Detached flowering stems of this plant, if laid in a cold frame and slightly covered with soil, will throw

out strong shoots from every perfect joint, and these can be taken off as cuttings and quickly make strong plants. This is much simpler than Mr. Beale's plan, requires little care, and produces, of coarse, the same number of plants, and probably stronger ones. On New Year's day, to give a practical example, I lifted a stem which had been laid in a cold frame about the middle of November. This had borne a specimen flower and is a foot long, with two weak side shoots, and it had twenty-six shoots in fine condition, though some were quite small. Half the stem gave no shoots, probably because the buds had been taken out in cultivation. Now, it will be seen that one could put this stem in gentle heat, and in a few weeks make a set of cuttings, and these grown along will make others, and as these increase, in a geometrical ratio, I think I am safe in saying that a good propagator would turn out from 150 to 200 plants from this stock by planting-time. Such an increase should satisfy the most exacting.

Because Chrysanthemums are almost necessarily protected by glass in the blooming season, there seems to be an increasing tendency to treat them all through as greenhouse plants. A plant which, after blooming with the greatest profusion, and thus being in a weakened condition, will live out-of-doors in a well drained border, in our climate, with such protection as is ordinarily given to most of the so-called hardy plants, and then "strikes" readily and naturally in a temperature of forty to fifty degrees, is scarcely to be classed as a greenhouse subject. The professional growers propagate and bring on their stock in heat very successfully, but it is not an example for the amateur to follow, except perhaps in the use of very slight bottom heat in striking, when necessary. For the general stock, cuttings in the cold frame will almost invariably root during the winter, and are not so liable to harden up and become worthless, as those grown along in the house. Mildew, however, is the enemy to be watched in this case, and frames should be aired at every opportunity. Most of our growers have discarded early cuttings on account of this liability to mildew. Amateurs will have satisfactory results if they plant their stock-plants closely in cold frames, and protect them well, although a little frost will not injure the plants. Cuttings should be dibbled out in February or March, in the same place. They will soon root, and should be given all possible air, with protection from winds, and planted out at the earliest possible moment.

Elizabeth, N. J. *J. N. Gerard.*

The Loquat and the Medlar.

THE Medlar (*Mespilus Germanica*) is a native of Europe, where it is frequently met with in its wild state; but in several of the southern states the fruit is becoming quite popular. In Germany it ranks very high as a common fruit, and large quantities are disposed of on the market-stalls of all the principal cities. When the seeds were first brought to this country it is difficult to say, and there is very little information to be obtained about it from any American books on fruit culture.

The Medlar reached Florida from New Orleans, having been brought there by some of the French Jesuits. It has now been growing in the Florida gardens for thirty years, and, in sections of the upper part of the state, the bushes are frequently met with in a semi-wild state. The fruits on these uncultivated plants have degenerated greatly, and present a strong contrast to those found in the gardens and groves of the white settlers.

The tree is small but handsome, and in Europe it is used for hedges almost as generally as the Osage Orange is employed for like purposes in this country. When the fruit is thoroughly developed and matured on the tree it has a dark brownish skin, with firm, austere flesh. It is of fair size, and very palatable after it has been kept until the first stages of decay, called bletting, has thoroughly softened the flesh of the pulp. It has a rich, subacid flavor then, which is highly prized by many who have become accustomed to the fruit.

The Medlar is usually propagated from seed; but in many sections of the south it has been budded or grafted on the Pear with great success. It has close affinities to the genus Pyrus, and by many botanists it is classed as a member of this genus.

The Loquat (*Eriobotrya Japonica*) is a related species to the Medlar, and in many sections of the south it passes under the misnomer "Japan Plum." It is grown quite extensively in the Gulf States, where it reaches its highest perfection; but in many instances it is planted more as an ornamental tree than for the fruit. The tree is a small but handsome evergreen, with thick, leathery, lanceolate leaves, highly polished on the upper side. In the fall of the year the blossoms, of a creamy white color, appear in large terminal spikes, and exhale an agreeable fragrance, scenting the air almost as generally as the Orange blossoms. In early spring the flowers drop off, and clusters of yellow fruit appear.

The fruit grows in clusters as close as grapes, with a thick skin of a dull pinkish color, and about the size of an ordinary plum. Most of the fruit has a delicious, pleasant subacid flavor; but there is a manifest difference in the size and flavor of the fruit in different sections of the south. There are no distinct varieties described; but some of the trees produce fruit that is very sweet and agreeable to the taste, while others are too acid to be eaten with any degree of pleasure.

The tree is propagated from the seed, and it may be seen in nearly every ornamental southern garden. In the sections of the south where frost is heavy the tree becomes blighted, even while the flowers and fruits are forming, so that it can really never amount to anything as a fruit producer. Going farther south, however, we find that, in the lower counties of Florida the Loquat blooms and matures its fruit during the winter season without interruption from cold, which in the spring offers a tempting feast to all who relish it. The first fruit appears the last of February, just when other fruits are scarce in our northern markets.

New York. *George E. Walsh.*

Dracæna Lindenii.—This makes a fine exhibition plant, and has great value for general decorative work, being especially useful for single specimens in vases. It is of recent introduction, and does not differ in its growth from the *D. fragrans*, but the broad, arching leaves of green are beautifully ornamented with a wide margin of creamy yellow, which gives to the plant a very attractive appearance and places it in the front rank of variegated plants. It is propagated easily by the usual method of layering or cutting up the canes, but to make good specimens, fit for exhibition purposes, the heads alone must be used, and these with care will make a fine crop of roots in a few weeks without the loss of a single leaf. *D. Massangeana* makes an excellent companion plant for the foregoing, only differing from it in that the variegation runs through the centre of the leaf instead of along the margin.

Ficus elastica variegata.—Mr. Taplin has not spoken any too highly of the merits of the variegated Rubber plant (ii., 620). We use it for house decoration, and find it quite as hardy as the common kind. We have never experienced any difficulty in rooting the cuttings whether by eyes or by tops. We have rooted a good many lately in a very warm, close frame, with about three inches of fine coal ashes and a brisk bottom heat.

Homalomena (Carmeria) Wallisii is not grown so generally as it should be. It is a handsome plant, belonging to the *Aroideæ*, of low-growing habit, not more than nine inches high, with drooping leaves, six to eight inches long by five inches wide, ovate-oblong, and pale velvety green, copiously blotched with golden yellow. The under surface is dull red. The flowers are rather attractive, the spathe being about three inches long, constricted in the middle and reddish brown, while the spadix is red. To ensure good leaves, however, the flowers should be picked as soon as seen. We grow this plant in the warmest house, potted in a mixture of peat and moss and keep it very wet. Under this treatment it gives great satisfaction. It should be propagated by division.

Kenwood, N. Y. *F. Goldring.*

Sowing Seed.—Let me add to Professor Bailey's admirable article that the importance of care in the preparation of the soil is sadly underrated. This care is usually given in proportion to the cost of the seed; that is, a novelty of high price receives due attention, and for this reason rather than for any real superiority, it may excel older sorts. The market-gardeners of Long Island, as a rule, buy their Cabbage-seed of a neighbor who has a reputation for a choice variety; something far superior, he thinks, to anything to be obtained at a seed-house. Market-gardeners pay from twelve to fifteen dollars per pound for this seed, when equally good seed could be bought at a reliable house for three dollars. But the fifteen-dollar seed is the cheapest for the gardener in the end, because he sows thinly in soil prepared with the greatest care. The result is that most of the seed germinates, the plants have sufficient room for development; they do not get "leggy," but are strong and stocky, and in the finely-pulverized, but well-compacted, soil they are well furnished with roots. When these plants are set in the field they do not suffer from the change; their vigor pushes them ahead, they are quickly established, and yield a large proportion of well-developed heads. Low-priced seed, purchased by the same gardener, would have been sown more thickly in loose and coarse soil, where the plants would have been long-drawn, poorly rooted

and without vigor when transplanted. The product from such a beginning will be late, small and of inferior quality. This is not an imaginary case. I have seen seed from the same stock give the best satisfaction, and in other cases none at all. The sole reason for these opposite results was that in one instance the seed was sown properly, and improperly in others. I have more than once noted experiences of precisely this character among the growers of Cauliflower in Suffolk County.

Floral Park, L. I. *C. L. Allen.*

Tuberous-rooted Begonias.—Now is the time to sow seed of tuberous Begonias for bedding, or for making showy pot plants this season. Sow in pans in, or rather on (for the seed needs no covering), a mixture of sifted leaf-soil and peat, using the siftings to cover the drainage. Set the pans in saucers, where there must be sufficient water to keep the surface moist by absorption. Place pieces of glass over them, tilted to admit air, rather for protection against careless watering and syringing than for the purpose of keeping them "close." Sixty degrees, night temperature, is sufficient for germination. Gradually remove the glass as the seedlings develop, and prick them out when large enough to handle in soil containing some loam. Increase the quantity of loam at successive stages, and give some shade in the middle of the day as the sun attains power. Plant out in June. A shady situation is generally recommended, but there is a difference of opinion. Save your own seed. In doing this you will succeed best with pot plants.

Wellesley, Mass. *F. D. H.*

Correspondence.

The Forest-floor.

To the Editor of GARDEN AND FOREST:

Sir.—While I appreciate and subscribe to the main idea of the editorial in GARDEN AND FOREST for December 18th, allow me to call your attention to an expression which may eventually give trouble to those who wish to convince others of the influence of forests on waterflow.

You refer to the spongy condition of the forest-floor, and it is quite an accepted theory that the forest-floor "acts like a sponge, taking up large quantities of water and gradually giving it up to the soil." Even scientific men are apt to use this simile. Now, this is not the action of a sponge, as a simple experiment could prove. While some forest-floors—by no means the majority—do act like a sponge, they are by that very action depriving soil and springs of a considerable share of water.

It is curious that the simile has been used so frequently without an attempt by somebody to first study the action of a sponge. It is simply this: after the sponge is saturated with water, and not before, it will give out water below if more water is added above—that is to say, if the water in the sponge is driven out by pressure of more water. As soon as the supply from above stops, the sponge will stop giving out water from below, except so far as it contains more water than it has capacity to hold. After that, the movement of the water is upward, not downward. Evaporation begins, the upper parts become dry and supply themselves with water from the lower strata by capillary action. Thus, while a spongy floor would do the one thing claimed for it—namely, "retain the water in the spongy mass" and diminish the water which runs off—it would not do the other thing which is implied, namely, furnish gradual supplies of water. This it could possibly do only if the underlying soil strata had become dry earlier than the spongy cover, which is the case only rarely and under exceptional conditions.

The question, then, is, how far does the forest-cover resemble a sponge? Fortunately for water supplies in springs, the resemblance occurs more rarely than the general use of the simile implies. A sponge is a material with remarkable powers of capillarity, as can be seen when placed in a puddle of water, which it will drink up with avidity. Such capillarity in a minor degree may be found in some moss covers, and the consequence is that the amount of water held and afterward evaporated—but not given up to the soil—is quite astonishing. The quantity of water thus retained may amount to from seventy to eighty per cent. of its weight, so that if the moss-cover exceeds a depth of four or five inches it may withhold nearly all the water from the soil, except of heavy rainfalls and snows, and this water is lost by evaporation twice to three times as fast as from other litter; whether an additional amount of water and how much of it will run off superficially or be filtered into the soil, depends largely upon the nature of the latter.

The various kinds of litter, which, after all, form the greater part of forest floors, appear and act, indeed, quite differently from sponges; their capillarity, as can be inferred to some extent from their rate of evaporation, is only small, and they will filter through to the soil much larger amounts of water than the moss (thirty to forty per cent. more). This kind of soil cover, like the moss, does also require a considerable amount of moisture to saturate it, but less than the moss-cover; it loses less by evaporation and gives up more water to the soil.

Altogether, we will have to admit that the forest-floor not only retards the run-off, but it diminishes the amount of water which percolates into the soil. And yet it acts beneficially upon the steady flow of springs by checking evaporation—the greatest dissipator of water supplies. Regularity of flow in the springs, brooks and rivers, as far as it depends upon forest-cover, is due to reduced evaporation under the protection of forest-shade and forest-floor.

The mechanical retardation of the run-off, which the irregularities of the forest-floor and the trunks, stumps and underbrush produce, will certainly tend to reduce the height of freshets in brooks by distributing the flow of water masses over a longer time. But it would be an unwarranted, easily demolished generalization, to say that this retarding influence is everywhere useful in preventing floods of rivers. It may, on the contrary, prove the very source of danger—geological, geographical and topographical conditions being most potent in altering the value of this influence.

It would lengthen this communication too far to argue the influence of forests on floods in general; my purpose is simply to object to the popular idea that a forest-floor acts like a sponge, and to insist that even the admitted retarding influence of the same may not in all cases and everywhere be a benefit.

Washington. *B. E. Fernow.*

Mr. Eyerman's Orchids.

To the Editor of GARDEN AND FOREST:

Sir.—During the past three years Mr. Eyerman, of Easton, Pennsylvania, has been making a collection of Orchids which now fill three houses, and a large conservatory has recently been added, containing a fine collection of Palms, Ferns, Cycads, etc., among which Orchids in bloom are tastefully arranged. In this structure I noticed on a recent visit scores of *Lælia autumnalis*, and its showy variety, Atrorubens, there being no fewer than fifty spikes crowded with blossoms. *L. albida* was equally well flowered, most of the plants being on blocks, and bearing unusually strong spikes of well formed and very large flowers. *Lælia Gouldiana*, a very scarce plant, was well represented here by a spike carrying several of its rich purple blossoms, and here, too, were many examples of the charming scarlet-flowered *Sophronites grandiflora*. Some fine Cypripediums of the Insigne type, flowering for the first time, were very interesting, many of them being distinct in character, and among them was a splendidly grown plant of *C. Leeanum superbum*, with twin-flowered spikes, and flowers of great size and exceptionally bright color. Here, too, was a good example of *Vanda cærulea* carrying a dozen of its lovely blue flowers, and near by *Oncidium tigrinum*, with well branched stems laden with rich yellow and chocolate blossoms.

In the house devoted to the Cattleyas and Lælias many choice plants were promising flower. *C. Trianæ* and many of its varieties will soon make a fine display, as will the scarce *C. Lawrenceana*, well grown specimens of which were furnished with strong flower-sheaths. *C. Percivaliana* was represented by several large plants, and among the Lælias were quantities of finely flowered *L. anceps*, and its white variety, *L. anceps stella*, carrying three well developed spikes. This variety has hitherto proved somewhat difficult to manage, but Mr. Mænner, the gardener here, has been very successful with it. The plants in baskets are well exposed to the light, and during their growing period receive a liberal supply of water with an abundance of air. In this house the pretty *Angræcum Sanderianum* was seen, and some enormous spikes of the yellow-flowering *Oncidium Cavendishianum* were rapidly pushing for bloom. A fine variety of *O. Forbesii* was very conspicuous, its chocolate and golden-yellow flowers growing in quantity on a well branched stem. Fine examples of *Odontoglossum Harryanum* and *Comparettia Macroplectron*, with its rosy pink flowers, were in excellent health, and at each end of the house were two handsome specimens of *Cymbidium Lowianum* almost ready to bloom.

In the Cypripedium house, among the rarer varieties, were noticed a grand specimen of *C. calurum* and *C. grande* was in superb health, together with *C. meirax*, *C. plunerum*, *C.*

Mrs. Charles Canham, C. Barteti, C. tonsum, C. nitens, C. Arthurianum, C. Fairrieanum and many others. In a lean-to structure, with a northern aspect, the Odontoglossums were in luxuriant health, the majority being of the *O. crispum* type, with stout bulbs and broad-petaled flowers. *O. Pescatorei, O. triumphans, O. nebulosum* and many more were thriving in a like manner. On the stage at the back of this house were some grand specimens of *Cypripedium insigne* in bloom, about 200 flowers being well expanded, and from the roof were suspended many fine specimens of *Oncidium ornithorhynchum, Epidendrum vitellinum*, Masdevallias in many varieties, and a fine lot of the pretty *Lælia Dayana*, and its varieties, Pumila Præstans and Marginata.

Summit, N. J. *A. Dimmock.*

Game Covers.

To the Editor of GARDEN AND FOREST:

Sir.—At the annual meeting of the Massachusetts Fish and Game Protective Association, held on January 8th, an instructive address was delivered by Professor B. M. Watson, Jr., of the Bussey Institute, on the subject "How best to preserve and increase the supply of natural food for game birds, and the best means of affording shelter for them."

The address was given in view of the fact that the Association contemplates the importation of valuable game birds of various species from the west and south, to be released in eastern Massachusetts in the spring; and the problem of supplying food and shelter is one of importance to those interested in birds. Professor Watson spoke of the adaptability of various trees, shrubs and grasses. He instanced the fact that many wild birds—quail, grouse and others—frequented the grounds of the Arnold Arboretum, where they are never molested, and where the natural fruits and seeds of various shrubs and plants contribute to their food supply, and he considered that such preserved lands greatly contributed to the welfare of game birds. As the work of introducing and establishing shrubbery for shelter, and fruit-bearing plants must necessarily be slow, the speaker recommends that many waste places—openings in woods, unused pasture lands, etc.—be sown annually with various cereals, particularly Buckwheat, which would yield quickest returns. In Europe for many years past the game and game-preserves have been artificially propagated, and the time has come when we must pursue a similar course or see our few game birds disappear.

The danger from forest fires is perhaps the most serious one to be met, as doubtless more young birds, nests, and even sitting birds, are destroyed by fire each year than can be estimated, not to speak of the wholesale destruction in this way of valuable cover and fruit-bearing vegetation.

Boston, Mass. *John Fottler Jr.*

The Mild Winter.

To the Editor of GARDEN AND FOREST:

Sir.—The effect of the unusually warm December was seen here in the opening leaves and swelling buds of many trees and shrubs in the college-grounds. *Spiræa Thunbergii, S. prunifolia* and *S. sorbifolia* were putting out leaves. Of the Honeysuckles, *Lonicera flava* and *L. sempervirens* were betrayed into the same fatal activity, while *L. Halliana* had not ceased its autumn growth. Lilac buds were ready to burst, and the blossom buds on Japan Quince, Silver Maple and Cottonwood showed a fullness quite hazardous for this changeable climate. On the 29th of December the temperature dropped to two degrees above zero, and has alternated between that point and sixty degrees above since then.

The following shrubs still hold their leaves on January 7th, and a good deal of their autumn brightness: *Ligustrum vulgare*, var. *buxifolium, L. ovalifolium, Lonicera Halliana, L. fragrantissima, Cotoneaster buxifolia* and *Cytisus capitatus.*

It is to be regretted that *Ligustrum ovalifolium* is so tender with us, having killed back nearly to the ground during the past two winters, for its stiff, shining, dark green leaves are conspicuous all through the fall and early winter, acknowledging the frosts only by a slight deepening of color and an occasional purplish tint.

Kansas Agricultural College. *S. C. Mason.*

A Garden Conceit.

To the Editor of GARDEN AND FOREST:

Sir.—A charming garden conceit is being carried out in the Royal Botanic Gardens at Dublin by the Curator, F. W. Burbidge, through whose intelligent care these gardens have become among the finest in Europe. "I am making a Bamboo walk," he writes, under date of December 20th, "and I have to plant the margins of a pond and to make a dripping well with an old Irish cross on it, so that all the maids who visit us may breathe their wishes at the fountain and find them all come true." *G. H. E.*

Rochester, N. Y.

Periodical Literature.

It is encouraging to find in a widely circulated popular periodical so strong a plea for the right treatment of a piece of the nation's property as is contained in the January number of the *Century Magazine.* The editorial headed "The Care of the Yosemite Valley," could not be more to the point or more judicious in tone. Beginning with a reference to the policy of "an active member of the Yosemite Valley Commission," who proposes to "cut down every tree that has sprouted within the last thirty years," it says that a crisis in the management of the valley is probably near at hand, distinctly explains why the whole country has as much right as California to express its wishes, and then shows what these wishes should be. The main question to be decided is whether "the treatment of the Yosemite landscape has been intrusted to skillful hands;" and from the results of a recent investigation by the Legislature of California and from numbers of photographs "showing the condition of the portions of the valley before and after the employment of the axe and the plow," the editor concludes that "the valley has not had the benefit of expert supervision." Then he says that though the commissioners, present and past, should not have their good faith impugned, and though "it is no reproach to them that they are not trained foresters," yet their responsibility begins with the very recognition of this last fact; "for, in the absence of knowledge of a professional nature, it should be their first aim to obtain the very best man or men available for this work. No such expert is too good or too expensive, and no claim upon the budget of California should have precedence of this." But there is as yet no certainty that this truth will be acted upon. There is every danger that future commissioners may think of everything else—and especially of facilities for transit—rather than of the preservation of the beauties of the valley. As it is tellingly put: "They may think it is more desirable to improve a trail than to preserve the sentiment for which the trail exists." Nothing could be truer than the following sentences, and we trust they may sink deeply into the minds of the hundreds of thousands whom the *Century* reaches: "To contrive means and methods by which that which is most distinctly valuable to the world in the Yosemite can be perpetuated, and to provide means by which the world can conveniently and effectively make use of it—which means shall be in the least degree possible conspicuous, incongruous, and disturbing to the spirit and character of the scenery—is a problem that no amateur ought to dabble with." Following this editorial essay came three "Open Letters" on the same subject, describing personal impressions received by men who are competent and impartial judges. One is from Mr. George C. MacKenzie, of Wawona, California, who speaks chiefly of the "absolutely shocking use that has been made of the wood-chopper's axe—deadliest foe, in reckless or ignorant hands, of woodland beauty; deadly unless guided by a mind of most rare attainments in the craft of artistic forestry." The writer goes on to say that "there are places in the valley where one is forced to wonder why the axes themselves did not turn and smite the men who were putting them to such base uses," and that "under the system by which the Yosemite is governed there is no saying when the work of the devourer of beauty may not again flourish," although it happened to be checked last year. Indeed, this is the main point. It is useless to try and make individual wrong-doers responsible for the destruction that has gone on. They "are merely the natural fruitage" of the system which intrusts the management of the valley to a board of commissioners who serve for short periods and without salaries, meet only semi-annually, and are chosen without the slightest reference to qualifications of knowledge or taste. Another letter-writer is Mr. R. U. Johnson, one of the editors of the magazine, who, while recognizing certain good points in the management of the valley, describes the terrible injuries that have been inflicted upon it, partly through carelessness, partly through greed, but just as often through an ignorant desire to "improve" upon what nature offers. The third correspondent is Judge Lucius P. Deming, of New Haven, Connecticut, who, again, makes a strong plea for the employment of a trained artist to repair what damage already done can still be repaired, and to guide the course of future work. His letter is not the most sensible of the three—all are equal in this respect—but perhaps the most interesting in its relation of the present state of things and its explanation of the aims that should in future be borne in mind.

Notes.

Elwes' Snowdrop is blooming in suburban gardens.

The loss from Fungus diseases in the vineyards of the Hudson River Valley last year has been estimated by careful observers at from fifty to seventy-five per cent. of the entire crop.

In the note on the discovery of a new station for the Nutmeg Hickory (*Hicoria myristicæformis*), on page 24 of the last number, "Southern California" should, of course, read "South Carolina."

A factory has been established at Mannheim, in Germany, for making a substitute for butter from Cocoa-nut oil. About 6,500 pounds of the substance are daily produced and it is said to be palatable as well as wholesome. It sells at a price equivalent to from twelve to fifteen cents a pound.

It is not known when or why the Chrysanthemum was adopted as the crest of the imperial family of Japan, but it is supposed to have been chosen for its hardiness as a symbol of the antiquity of the dynasty. As used on the Emperor's arms the flower appears in single shape with sixteen rays connected by as many little semicircles.

Mr. C. G. Pringle has lately returned from Mexico, having passed the summer in botanical exploration in the Sierra Madre, and the autumn and early winter near Guadalajara, in the state of Jalisco. He is now engaged at his home in Vermont in preparing for the distribution of the summer's harvest of plants, about 18,000 specimens, representing about 350 species.

In reference to the destruction of wild flowers, Professor Bailey, of Brown University, writes that it is not uncommon to see large baskets of *Arethusa bulbosa* for sale on the streets of Providence in May. Water Lilies are peddled all summer. From their habit and situation they are in less danger of extermination, but these rather rare and local Orchids cannot long endure such onslaughts.

Dr. Edward Palmer sailed from San Diego on the 25th of last month for La Paz to continue his explorations of Mexican botany. From La Paz he intends to travel northward and expects to reach the neighborhood of Guaymas in April. Mr. T. S. Brandegee sailed by the same steamer for the purpose of exploring the lower part of the California peninsula between Magdalena Bay and Cape San Lucas.

A correspondent in Glenellen, Tennessee, sends us the following memorandum with regard to a large Tulip-tree recently cut down near that place. The smallest diameter across the stump, three feet from the ground, was seventy-eight inches inside the bark, which showed 604 layers of annual growth with only thirty-eight layers of sap-wood occupying a width of an inch and a half. The diameter increased three inches in the thirty years, beginning with the five hundred and thirty-sixth year of the tree's age, and six inches in twenty-five years, beginning at a period when the tree was eighteen inches in diameter.

The *Gardeners' Chronicle* has an interesting article on Cornish gardens and the testimony they offer in proof of the mildness of the climate in certain parts of Cornwall. Certainly Falmouth must be a favored spot on the British Isles, when Agaves flower there, and Bamboos, Palms, Tree-ferns and Dracænas flourish, and Pelargoniums cover the entire fronts of many houses. We may add that this vegetation is a striking evidence of the difference in climate caused by ocean currents, winds and other influences on opposite shores of the Atlantic. One can hardly imagine Bamboos in Labrador, and yet Falmouth is nearer the North Pole than the southern part of Labrador.

About ten years ago the Austro-Hungarian government planted the sides of a very exposed stretch of railroad, nearly a mile and a half in length, with hedges of the Provence Rose. The hedges have since reached a height of about six and a half feet and a breadth of half as much, for it is a peculiarity of the Provence Rose to interlock its branches and twigs. A living wall has thus been formed which effectively protects the track from snow-drifts, while a neighboring stretch, where the Rose could not be planted, is so deeply buried at every snow fall that it costs much labor to clear it. The first cost was very small and it is believed the hedges will live for thirty or forty years.

Paris will be permanently benefited by the International Exhibition recently closed. The gardens formed on the once naked expanse of the Champs de Mars will remain, and will be extended over spaces covered during the summer by a multitude of minor structures. The two palaces of the arts will be preserved, and likewise the immense machine gallery, and the latter, it is announced, will be held in readiness for live stock, agricultural and horticultural exhibitions. Under such an unrivaled expanse of glass wonderful shows will doubtless be arranged, especially as a track 300 yards in length and 100 yards in breadth will alternately serve for the exercising of animals and the disposal of flower-beds.

A writer in the *Pacific Rural Press* proposes to use the blossoms of Orange-trees for perfume, and thus realize one more profit from the trees. Every Orange-tree, he argues, has at least ten times as many blossoms yearly as can or ought to bear fruit. At least three-fourths, if not seven-eighths, of the blossoms can be picked off and worked into perfumery without damage to the orange crop. There is a place on the Mediterranean called Grasse, lying near Genoa, where the manufacture of perfumery from orange-blossoms is a specialty—the trees being cultivated for that purpose. Some of the perfumes are exceedingly expensive—one kind of oil made from the orange-blossom selling at the rate of $300 per gallon.

At the suggestion of Professor Maynard, of the Massachusetts Agricultural College, Dr. Jabez Fisher, of Fitchburg, girdled one of the two bearing arms of each of sixty Concord Grapevines on the 5th of July last, taking out a ring of bark half an inch long near the trunk of the Vine. As a result the grapes on these arms showed color six days before those on the opposite half. They were fit for market September 20th, or some ten days in advance of the others, and the berries were much larger and sweeter. The gain in earliness makes a great difference in the price of the fruit, and later varieties could be grown when thus treated, which would not ripen if left to themselves. The grapes are larger and more attractive, and this would counterbalance the softness of the berries, a condition which the girdling seems to cause.

Did we go back to farthest antiquity for our holiday customs we should not hang up the Mistletoe until a week after Christmas. When the Druids had carefully cut the parasite from its Oak with golden shears and dropped it into the white cloths held to prevent it from touching the earth, it was distributed to the people on the first day of the new year. Its chief offices were supposed to be the conferring of fertility and of invulnerability to poison. With the advent of Christianity the old reverence for the plant remained in a diluted form. Its use was transferred to Christmas, but it was still hung from the ceiling as it had been in days when a bit that fell to the ground was supposed to portend ill luck. Until that happened it was sacred to the beneficent Freya, but the ground was Loki's empire and Loki was the promoter of all misfortune.

A correspondent sends us a photograph of the great Silver Maple (*Acer saccharinum*) growing on the meadows at Northampton, in Massachusetts, which Emerson mentioned in his "Trees of Massachusetts," page 489. This tree, according to Emerson, in 1837 had a trunk circumference three and a half feet from the ground of twelve and a half feet. Fifty-two years later the trunk girths at the same distance from the ground seventeen feet four inches, an increase of four feet ten inches, equal to an annual average increase in diameter of .355 of an inch. This is remarkable growth, considering the probable great age of the tree, which, judged by the vigor of the branches as shown in the photograph, promises to survive for many years more, although the trunk shows a large cavity extending through it near the ground from one side to the other. Several of the large branches too have been destroyed.

Much has recently been said in these columns about the proper arrangement of trees, shrubs and vines close to country houses. An excellent example of successful treatment may be seen in a colored plate, accompanying the issue of *The American Architect and Building News* for December 28th, which represents a house owned by Mr. Herbert Jaques, at Chestnut Hill, near Boston, and recently built by Messrs. Andrews and Jaques. A group of tall Elms, stands just near enough to the end of the house to shadow without darkening it; and shrubs are grouped beneath the trees and carried well up to it, where they blend with the vines that are beginning to clothe it. Behind a shed at the opposite end of the house rises a smaller Elm, and the front of the shed is masked by gracefully growing shrubs. Except where the gravel curve actually meets the doorway, a space is left for low shrubs and vines. The lawn that fills the foreground of the picture would be improved by the removal of its few isolated shrubs and saplings; but with this exception, house and planting alike are models of their kind.